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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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EXAMINER

WESSMAN, ANDREW E

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

1742

DATE MAILED: 11/20/2002

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/680,088

Applicant(s)

NABESHIMA ET AL.

Examiner

Andrew E Wessman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 August 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1 and 3 remain for examination, and have been amended. Claim 2 has been cancelled.
2. The rejection of claim 1 under 35 U.S.C. 112, 2nd paragraph has been withdrawn in view of the amendment.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al.

Kato et al. teaches (see abstract) a method for producing steel in which a material containing metallic calcium is added to molten steel in an amount of from 0.0005wt% to 0.005wt%. Kato et al. teaches (col. 3, lines 3-15) that the addition of calcium is useful for controlling the formation of inclusions in the steel, which can have a detrimental effect during processing.

Kato et al. does not specifically teach that at least 80% of inclusions of 2 microns or larger will have an equilibrium sulfur soluble amount of 0.03wt% or less. However, Kato et al. does teach that the product of the %Ca and %S are less than about 2×10^{-5} . By this relationship, the highest sulfur concentration would be seen at the lowest calcium concentration, 0.0005wt%, and using that value to calculate the sulfur content it is found that the content of sulfur would have been expected to be 0.04wt% or less.

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Sulfur contents of less than 0.04wt%, which overlaps less than 0.03wt%, are therefore within the scope of the teachings of Kato et al. Because substantially all of the sulfur in the inclusions would be expected to be in amounts of 0.04wt% or less, one of ordinary skill in the art would expect and this would apply to all of the inclusions regardless of their size, and therefore at least 80% of the inclusions of 2 microns or larger would have been expected to have equilibrium sulfur content of less than 0.04wt% or less, which overlaps applicant's claimed range of less than 0.03wt% or less.

Allowable Subject Matter

5. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The mathematical relationships for controlling sulfur content in the inclusions in the steel of claim 3 are not taught in the prior art, and would not have been obvious to one of ordinary skill in the art. Because the claimed relationships are not taught in the prior art, nor would they have been obvious, claim 3 would be allowable if rewritten in independent form.

Response to Arguments

6. Applicant's arguments filed August 19, 2002 have been fully considered but they are not persuasive. In the remarks, applicant argues:

- (1) The sulfur content of the steel as a whole would not necessarily correspond to the sulfur content of the inclusions required by the claimed invention; and
- (2) Kato et al. does not teach the use of Ti in the steel.

With regards to applicant's argument (1), while the examiner acknowledges that the sulfur content of the inclusions in the steel would not necessarily correspond to the sulfur content in the steel as a whole, there is no reason to believe that the steel of Kato et al. would have inclusions containing high content of sulfur. The sulfur is primarily controlled with regards to the calcium content, similarly to that of the claimed invention, and the composition and type of steel used in Kato et al. and the claimed invention are substantially similar. Therefore, it would be expected that the sulfur content of the inclusions of Kato et al. would be similar to that of the inclusions of the claimed invention, and the steels would be substantially the same.

With regards to applicant's argument (2), while Kato et al. does not mention the use of titanium in the steel, the claimed invention does not require titanium to be present in the steel. This is simply one possible embodiment, and because Kato et al. teaches aluminum can be used in the steel, as in the other embodiment of the claimed invention, Kato et al. is still substantially the same as the claimed invention.

Declaration

7. The declaration under 37 CFR 1.132 filed August 19, 2002 is insufficient to overcome the rejection of claim 1 based upon Kato et al. as set forth in the last Office action because: The declaration does not provide any evidence, only arguments. Evidence in the form of experimental data or other scientific evidence differentiating the claimed invention from the prior art must be presented if a declaration is to be used to overcome the rejection based on the prior art.

Conclusion

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8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew E Wessman whose telephone number is (703)305-3163. The examiner can normally be reached on Monday through Friday, 8:00am to 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (703)308-1146. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9310 for regular communications and (703)872-9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0661.

AEW
November 18, 2002

ROY KING 
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700